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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/710,275

06/30/2004

Bruce Matthew Dunham

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7590

09/09/2005

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EXAMINER

YUN, JURIE

ART UNIT

PAPER NUMBER

2882

DATE MAILED: 09/09/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No. 10/710,275	Applicant(s) DUNHAM, BRUCE MATTHEW	
	Examiner Jurie Yun	Art Unit 2882	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 30 June 2004.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-29 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-29 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 30 June 2004 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date <u>6/30/04</u> . | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Claim Objections

1. Claims 3, 11, and 19 are objected to because of the following informalities: there is lack of antecedent basis for "the vacuum housing". Appropriate correction is required.

Claim Rejections - 35 USC § 112

2. The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

3. Claims 1, 4-9, 12-17, 20-23, 25-27, and 29 are rejected under 35 U.S.C. 112, first paragraph, because the specification, while being enabling for X-rays, does not reasonably provide enablement for any and all types of imaging such as MRI, ultrasound, etc. The specification does not enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make the invention commensurate in scope with these claims. The specification discloses production of X-ray beams controlled by X-ray controller, 26.

Claim Rejections - 35 USC § 102

4. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

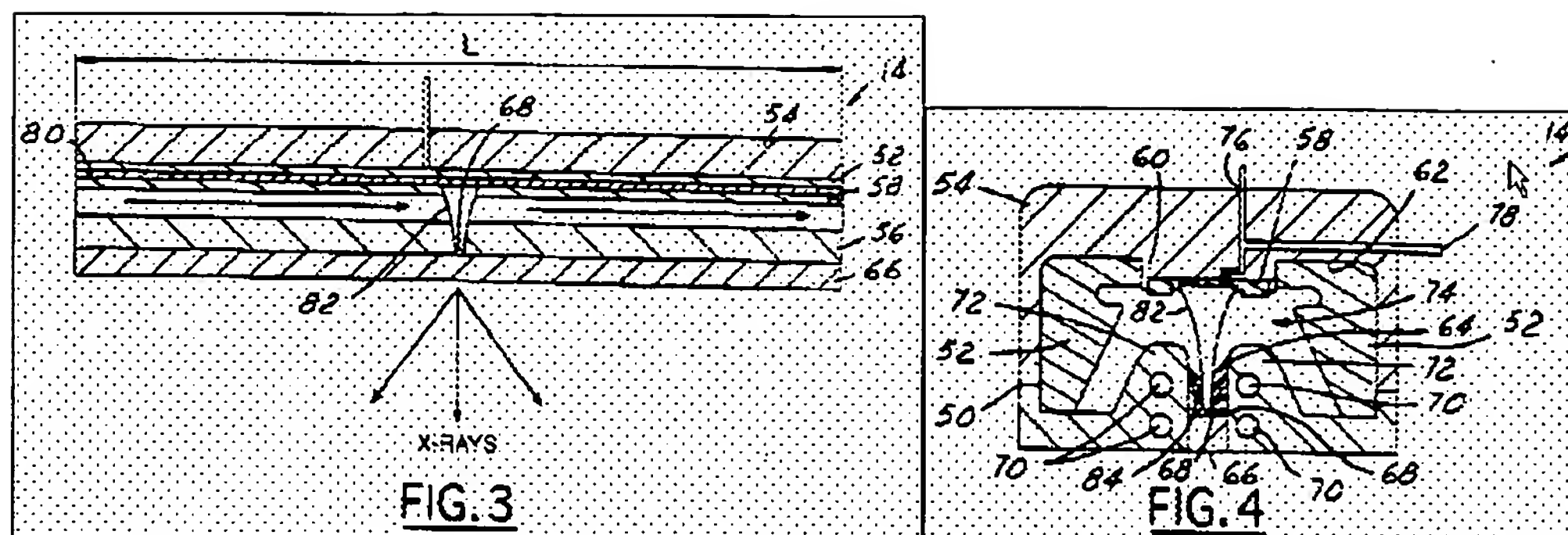
(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

5. Claims 1-6, 8-13, 15, 16, and 23-26 are rejected under 35 U.S.C. 102(b) as being anticipated by Dunham et al. (USPN 6,385,292 B1).

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6. With respect to claims 1, 5, 8, 9, 15, 16, 23, and 25, Dunham et al. disclose an electron emitter assembly comprising: a light source configured to emit light; a plurality of photo-responsive devices and a plurality of electron emitter devices (Fig. 3, 80), each photo-responsive device being operably coupled to a corresponding electron emitter device, each photo-responsive device inducing the corresponding electron emitter device to emit electrons in response to the photo-responsive device receiving at least a portion of the light; and an anode (68) receiving the emitted electrons from each of the electron emitter devices (column 4, line 54 – column 5, lines 1+). Dunham et al. disclose (column 4, line 61 – column 5, line 19):

Photo emitters may also be used for cathode 58. Photo emitters may, for example, use compact laser diode arrays. Emission occurs according to the order in which the laser beams of sufficient power and proper wavelength "address" the emitters by raster scanning of emitters which are arranged across a face of a flat panel plane or arranged on a bar that scans or moves across the face of the device. The photo emitters may also be in the form of a line or series of smaller dimension standalone emitter batches that would emit in a pattern corresponding to the emitters that have been addressed to be emitting. In all of the embodiments, cathode 58 may be formed of a plurality of emitters 80 best shown in FIG. 3. Cathode elements 80 are preferably addressable meaning that they may be selectively turned on and off to form the electron beam. With respect to emitters, photo emitters emit electrons when light reaches the solid state device capable of releasing the electrons into vacuum chamber 74. Light emission from photo laser devices such as solid state lasers and the like have been controlled to within micro or nano seconds. Laser devices can produce high efficiencies of photo emission. Preferably the addressability is sequential and allows the beam formed at one end to effectively move across the cathode in a scanned manner. Light signal switching devices such as micro-machined mirrors onto a solid state monolithic substrate may also be used.



As cited above, Dunham et al. disclose laser beams of sufficient power and proper wavelength which "address" the emitters by raster scanning.

7. With respect to claims 2, 10, and 24, Dunham et al. disclose the anode is configured to emit x-rays in response to receiving the emitted electrons from the electron emitter device (the emitted X-rays are shown in Fig. 3 above).
8. With respect to claims 3 and 11, Dunham et al. disclose a housing (50) having a light receiving window configured to allow light from the light source to pass therethrough, the photo-responsive device and the anode (68) being disposed in the vacuum housing wherein the photo-responsive device is positioned to receive the light from the light source, the vacuum housing further comprising an X-ray transmissive window (66) being disposed in an aperture extending through a wall of the housing, wherein the anode emits X-rays (Fig. 3) through the X-ray transmissive window in response to receiving the emitted electrons from the electron emitter device.
9. With respect to claims 4, 12, and 26, Dunham et al. disclose the electron emitter device comprises a field emitter array (column 6, line 66).
10. With respect to claims 6 and 13, Dunham et al. disclose a mirror configured to receive light from the light source and to reflect the light towards the photo-responsive

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device. Dunham et al. disclose (column 5, lines 17-19), "Light signal switching devices such as micro-machined mirrors onto a solid state monolithic substrate may also be used."

Claim Rejections - 35 USC § 103

11. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

12. Claims 7 and 14 are rejected under 35 U.S.C. 103(a) as being unpatentable over Dunham et al. (USPN 6,385,292 B1) as applied to claims 1, 6, 9, and 13 above, and further in view of Heinzerling (USPN 4,236,080).

13. With respect to claims 7 and 14, Dunham et al. teach use of a mirror for light signal switching devices (column 5, lines 17-19), but do not go into the specifics of the way the mirror is used. Dunham et al. do not disclose the mirror can rotate about at least two axes. Heinzerling discloses use of a rotatable mirror (Fig. 3, rotation axis, 13) to direct light in specific directions. It would have been obvious to one of ordinary skill in the art at the time the invention was made to use this teaching in the Dunham et al. light signal switching device, because this is a common and easy way to direct light, as taught by Heinzerling.

Allowable Subject Matter

14. Claims 17-22 and 27-29 would be allowable if rewritten or amended to overcome the rejection(s) under 35 U.S.C. 112, 2nd paragraph, set forth in this Office action. The

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following is a statement of reasons for the indication of allowable subject matter: Prior art fails to disclose an electron emitter assembly comprising a first light source configured to emit light having a first wavelength, and a second light source configured to emit light having a second wavelength, as claimed in claim 17. Prior art fails to disclose a method for generating electron beams comprising emitting light having a first wavelength onto a first photo-responsive device, and emitting light having a second wavelength onto a second photo-responsive device, as claimed in claim 27.

Conclusion

15. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Ito et al. (USPN 5,485,371) disclose a laser beam reflected and deflected by a rotating polygon mirror rotated by a motor.


Any inquiry concerning this communication or earlier communications from the examiner should be directed to Julie Yun whose telephone number is 571 272-2497.

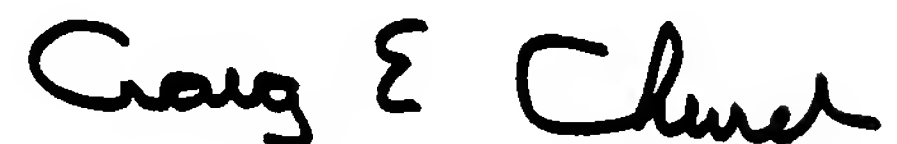
The examiner can normally be reached on Monday-Friday 8:30-5:00pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Ed Glick can be reached on 571 272-2490. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

 Jurie Yun
August 31, 2005



Craig E. Church
Primary Examiner